



Publication office at Bartow, Florida. Entered as second class matter February 16th, 1920, at the post office at Tampa, Florida, under the act of March 3, 1879. Entered as second class matter June 19, 1933, at the post office at Bartow, Florida, under act of March 3, 1879.

The Work Of The Agronomy Department Of The State Experiment Station

BY. W. E. STOKES, AGRONOMIST,
AND HEAD OF DEPARTMENT

Agronomy deals with both the theory and practice or the science and art of economical farm crop production and soil management.

The Agronomy Department of the State Experiment Station was established as such in 1927. Prior to this time some agronomic work had been done mainly by the Animal Husbandry Department and particularly with pasture and forage crops.

At the present time about twenty projects involving crop variety testing, crop breeding, crop rotation and fertilizer requirement studies, cover and soil building crop studies, pasture, silage and hay plant studies and the introduction and testing of new crops are under way.

Probably no line of investigational work is of more fundamental importance to the agriculture of the State than that carried on by the Agronomy Department. Certainly the future agricultural development of the state will be closely associated with its capacity to produce general field, hay, pasture, silage, soiling grain, cover crop and soil building crops.

A well rounded state agricultural research institution can not afford to fail to scientifically investigate and, if possible, solve problems connected with the economic production of her

EDITOR'S NOTE

This paper by Mr. Stokes, while not primarily dealing with citrus culture, will be found of sufficient interest to many citrus growers who may be interested in the growing of other crops to merit reproduction here. We believe that many of the points covered by Mr. Stokes will prove of value to many readers of this publication.—The Editor.

field crops. Important though marketing is, crops must first be profitably produced in quantity in order to have something to market. It is highly essential that our farmers know definitely crops best adapted to their soils, the best varieties obtainable, the best methods of land preparation, best rotations, fertilization, cultivation, harvesting, storing or handling and the proper methods of soil conservation and building in order that they may so farm as to make a comfortable living and in the end be able to turn the farm over to posterity more productive than it was when they began. It is the busi-

ness of the Agronomy Department to seek for and to obtain this necessary information on crops and soils management and in turn hand it over to the Agricultural Extension Service for dissemination to the farmers of the state. This then is why the Department exists.

Some Work and Accomplishments of the Department

(1) Testing new crop material from all parts of the world having a climate similar to Florida.

Results — The following crops have come into use as a result of such work: Velvet beans, Crotalaria, Napier grass, Bahia grass, Centipede grass, Para grass, Cayana sugar cane, Suwannee cowpeas, African squash and others.

Crop variety testing:

(a) Corn variety tests show Whatley Prolific to be 25 per cent higher yielding than the best of other varieties but less weevil resistant than some lower yielding native Florida corns.

(b) Cowpea variety tests show Brabbam, Iron and Victor varieties highly resistant to root-knot and wilt and the Suwannee to be the highest forage yielder of any variety but somewhat susceptible to root-knot

(Continued on page 20)

The Citrus Industry

with which is merged The Citrus Leaf

Exclusive publication of the Citrus Growers and Shippers

Publication office 550 North Broadway, Bartow, Florida

Telephone 289

Published Monthly by
ASSOCIATED PUBLICATIONS CORPORATION
S. L. FRISBIE - President
S. LLOYD FRISBIE - Secretary-Treasurer
A. G. MANN - Production Manager

Subscription, \$1.00 per year in advance

NEW YORK OFFICE
118 East 28th Street — Telephone Lexington 2-4478
Edwin F. Ripley, Manager

CHICAGO REPRESENTATIVE
Joe Esler, 6241 North Oakley Avenue
Telephone—Briargate 7441

TEXAS ENTERS LEMON FIELD

It is but a few short years ago that Texas began growing grapefruit on a commercial scale. At the outset, Florida growers of grapefruit were openly skeptical of the success of the venture, yet it was not long until Texas had far outstripped California and Arizona in the production of grapefruit and that state is now recognized as the chief competitor of Florida in grapefruit production.

For the first few years after grapefruit groves were planted in Texas the growers of that state confined themselves to this particular branch of citrus culture. Later, however, some venturesome pioneers began the planting of orange groves and during the past few years orange production has steadily increased and grown in favor with Texas planters.

Now, just as Florida is beginning to grow lemons in commercial quantities, comes the information that Texas too has entered the lemon field and is bidding against California for favor in the markets of the Central West.

The development of the Meyer lemon, said to compare favorably with lemons produced in California and those imported from Italy, has resulted in many Texas growers planting quite extensive areas to this fruit. While the production is still limited it has grown to such an extent that a lemon growers association has been formed to control distribution and familiarize consumers with the merits of the Texas fruit.

So far as the immediate future is concerned, it is unlikely that either Florida or Texas can produce lemons in sufficient quantity to seriously invade the markets now controlled by California producers, but as lemon production increases in each of these states serious competition may be expected to develop.

With Texas now producing grapefruit, oranges and lemons, the query naturally arises as to how long it will be before our neighbors to the west may invade Florida's exclusive field — the production of limes.

Nothing is more beautiful than a well-kept citrus grove — and nothing more hideous than a neglected one.

THE MARKET OUTLOOK

Charles H. Walker, president of the Florida Grapefruit Growers League, forecasts good prices for grapefruit, both for canners' grades and for the higher grades which go to the general markets. General Manager C. C. Commander of the Florida Citrus Exchange predicts a good market for all varieties of citrus — oranges, grapefruit and tangerines.

Both Mr. Walker and Mr. Commander, however, qualify their predictions. Both agree that to secure the prices which they foretell, the growers must exercise judgment in the control of distribution and stand pat on the demand for a price level commensurate with the actual value of the fruit.

Present indications are that orange production will be about the same as last season. The Florida grapefruit crop probably will be from 30 to 35 per cent lower. Texas will have an increased grapefruit crop, but the nation's supply will be lower than last year.

Under these conditions, proper control of distribution, the withholding of immature and unfit fruit from the markets and a disposition on the part of growers to demand an adequate return for canners' grade fruit, should result in satisfactory profits from the crop just about to begin to move. If, however, growers permit themselves to ship immature fruit, if they rush fruit to market indiscriminately, if they fail to demand a fair return for canners' supplies, they may expect to harvest a loss instead of a profit from their groves.

Past experience should be the only necessary guide in the handling of the present season's crop. Poor fruit has never returned a profit nor have glutted markets ever resulted in anything but loss to the growers. This season will be no exception to the rule.

"BRINGING COALS TO NEWCASTLE"

Most Americans, and particularly American growers of citrus fruits, will be surprised to learn that Japan is shipping canned oranges to the American market. Yet published accounts of the recent arrival of 1000 cases of canned oranges from Japan at a New England port indicate all too clearly that such is the case.

American citrus growers have been wont to believe that they held a monopoly on the canning of citrus fruits and citrus juices in commercial quantities, but this initial shipment of 1000 cases of canned oranges from Japan demonstrates that citrus growers of the Orient are seriously endeavoring to compete with American growers in their own home territory.

Of course, 1000 cases of canned oranges from Japan or any other citrus producing area does not in itself mean much. One thousand cases will not go far. But it does indicate that we of America must be prepared to meet foreign competition in a field which heretofore we had considered peculiarly our own.

EXCHANGE HEAD SEES GOOD CITRUS SEASON

(Continued from page 3)

less marketing fallacy may be seen in the present movement of the Isle of Pines grapefruit crop. During the summer a group of speculative interests in New York purchased this crop, expecting to get high prices for it because of the shortage in the California grapefruit crop. These shippers, anxious to get fruit on the market and cash in at high prices, began shipping fruit before it was mature. The results have been the payment of heavy penalties, and for proof of this all you have to do is look at today's quotations on Isle of Pines fruit. While the market opened high, it has fallen steadily although the volume has not been heavy.

"Florida growers and shippers will have the same experience unless it moves nothing but mature, thoroughly edible and satisfactory fruit. The growers themselves can do much to prevent the movement of immature fruit, either oranges or grapefruit. It is their responsibility, as well as the shippers, to see that this class of fruit does not ruin the markets. Then can refuse to sell, consign, or allow any fruit to be moved from their groves unless it is well in line with the maturity standards.

"Present indications point to a decided shortage in Florida's tangerine crop. If this fruit is picked for sizes and quality and is properly distributed, it should bring highly satisfactory returns.

"On the other hand, tangerine competition has increased. Large quantities of satsumas are imported from Japan and are directly competitive to our tangerine crop. In addition, huge volumes of canned satsumas and mandarines are imported from Japan and sold at retail prices which are harmful to the Florida tangerine picture. These fruits have wide distribution and are a real factor in spite of the short marketing season for Florida tangerines.

"The correction of this imported competition is a job which should receive serious consideration on the part of the Florida Citrus Commission. This body is supposed to represent the entire Florida industry and because of that fact is in a position to make strong representations in Washington to obtain effective measures for relief from it. I am hopeful that the Commission during the coming season will make a thorough investigation of this danger and


THE CITRUS INDUSTRY


will take the necessary steps to meet it.

"While economic conditions in general have improved, it must be recognized that at the same time rents and other living costs have increased. There may be more dollars available, but there is more competition for those dollars. If Florida, therefore, is to retain its proper position and to realize upon the exceptionally favorable possibilities which are a part of the coming season's marketing situation, it will require the use of the finest merchandising and marketing instruments, regulations and tactics which are available or can be developed in the industry.

"Favorable economic conditions make markets. Labor troubles and extended strikes affect these conditions unfavorably. Unfortunately, therefore, there may be some retrogression in the satisfactory conditions which are current today. Labor troubles probably will continue and get worse with their associated strikes and general unrest. Shippers and growers should consider their own labor problems carefully. We know there is considerable irregularity over our own belt as to the wages paid for the same classes of field and house labor. In some sections wage levels are so low as to be con-

(Continued on page 15)






Nitrate Agencies Company
JACKSONVILLE - FLORIDA

MEMO: Re: Advertising
*The more we Compare Results
 the more convinced we are
 that a grower who follows
 the NACO Plan for fertilizing
 (and spraying - dusting) gets what
 amounts to Crop Insurance -
 so let's keep asking them to
 COMPARE RESULTS!*

*and if they will we
 know that Florida growers
 will buy many more tons
 of NACO Brand Fertilizers
 and Insecticides!*



IMPRESSIONS

..By..
Frank Kay Anderson

Some mid-July visitors who made us heartily ashamed of ourself. Pilgrims from South Dakota who were singing paens of praise for the Florida summer climate. They had left it around 112 in the shade at home. And we had been grumbling to ourself about the hot weather here.

Whenever three or more persons gather together something usually happens. If they are Methodists, they are likely to take up a collection. If they are Scandinavians, someone puts the coffee pot over to boil. If they are Florida citrus folks, someone turns the talk around to oranges.

We are not unaccustomed to being embarrassed. The long feud between the towns of Longwood and Altamonte Springs concerning which may claim us — we live equidistant from each out in the country, so that Altamonte Springs claims we belong to Longwood, and Longwood claims we belong to Altamonte Springs — inures us to such things. But with two such distinguished citizens as Bayard F. Floyd of Davenport, erudite vice-president of the Wilson & Toomer organization, and B. C. Skinner of Dunedin, Florida's flying fruit-painter, squabbling for the privilege of paying our lunch check recently, our well known poise was severely tested.

By long practice we have perfected our check-fumbling technique to a high point, but in this instance there was no call to bring our proficiency into practise. What a relief!

From Bee Ridge, which is in Sarasota county if you want to know, Alfred W. Stockett takes his pen in hand, or typewriter upon his lap, to chide us for the phraseology we used last month in illustrating the fact that the public's consumption of oranges has increased very largely in recent years, while the consumption of apples has declined. Like the Monday-morning quarterback, Mr. Stockett is eminently correct. Our phraseology was unfor-

tunate, and inaccurate. We only hope we got the approximate idea over to our readers.

However, we feel kindly toward Mr. Stockett for his interest. Now and then we put over something praiseworthy in these columns which moves a few to pat us on the back when they see us. No one, however, ever takes the trouble to write in and praise our scintillations. It's the critical comments coming in by mail which serve to prove to us that we possess that very vital necessity — readers. Our public!

With all the recent discussion of wages and hours legislation comprised in the Black-Connery Bill, it looks as if one quite important angle to date has been overlooked. That is the possible effect of the maximum hours provisions upon business as between the larger cities and the smaller towns. It looks to us as if these would play right into the hands of businesses located in the large centers, at the expense of those domiciled in the small places.

One of the most noticeable effects of the maximum hours of the NRA was to turn business into the large cities. Now it is proposed to repeat that error. How it works may be illustrated by the printing business, for instance. Take two printing plants, one in a large city and one in a small town. In the large city there is plenty of floating skilled labor, craftsmen who circulate from one plant to another, and who, in prosperous times, manage to eke out pretty fair wages in the total. If a printing plant in one of the great cities needs extra help, cards hung on the lamp posts or ads in the help wanted columns generally obtain it quickly. So limitations upon the working hours of regular employees are no bar to extending operations if unusual orders offer. Naturally enough there is little floating skilled labor in the small town, because jobs are too scarce. Maximum hours for employees in small town plants in effect mean maxi-

mum hours for the operation of the business. In the city a shift of employees makes it possible to operate the business far beyond the limitation upon the labor of any individuals. What is true of the printing trade generally is true of all the skilled trades. The advantage to city plants is manifest, and under the actual operations of NRA was self-evident.

Omitting all other weaknesses of the Black-Connery Bill, and various other manifestations of the theorists now so active, and forgetting personal interests, we believe there is a general consensus of opinion in these United States today that it is extremely unwise further to build up our big cities at the expense of the country. Yet here is a definite undertaking to do just that thing, and, because it masquerades under the guise of a benevolent humanitarianism, no one apparently is courageous enough to bring the real issue before the Congress.

Hats off to the makers of Royal Baking Powder. Their recent double page spread in colors in the women's magazine showing a picture of Lou Gehrig's mother and his favorite dish, Baked Grapefruit Pudding, rates as one of the most effective citrus ads of all time. We don't know a thing about the dish recommended; we take our grapefruit straight like we take our, well now, cod liver oil; but the picture in colors surely looks appetizing.

Now, at this writing, it seems assured that the Black Bill, prior to the death of Representative Connery called the Black-Connery Bill, dies automatically, with the understanding it will be revived at the next session, while the author takes his place upon the U. S. Supreme court. Maybe these developments account for the relative ease with which the measure went through the Senate. Some of those gentlemen at Washington are uncanny guessers.

Now to wonder if between the

time of adjournment and the first of the year, the folks back home will be able to make their senators and representatives understand how they really feel upon the subject. The matter is complicated. When such an ultra-conservative as Sen. Lodge votes for the measure it must be that he sees in it something to the advantage of his own section and to the disadvantage of the South. That ought to wake up the Southerners in Congress; but will it?

Personally we know nothing of the alleged Communistic—CIO activities said to be scheduled for the benefit of the Florida citrus industry save what we have read, and have heard repeated. Making allowances for exaggeration, it seems that where there is so much smoke there must be some fire. To what extent the industry may be embarrassed by these, it is just now difficult to guess. The prediction we have heard that the contemplated labor reforms "will not add more than ten cents per box" to picking and packing costs, may be regarded in very different lights by the reform zealots and by the growers.

It is to be hoped that there may be no later accompaniment of Congressional alleged investigation, with photos free to the sensational press of hookworm subjects exhibited as typical-half-starved citrus workers, such as the LaFollette senatorial committee emphasized in its so-called investigation into employment in Harlan county, Kentucky coal fields. Unfortunately the pure advertising laws, so strictly enforced in some states, cannot be extended to cover deliberate misrepresentation by members of the Congress of the United States bent upon their own selfish political projects.

It will be just a bit ironical if the well meant "control" of the citrus industry by Secretary Wallace and his AAA forces results in making capital for the labor agitator. The alternate go-aheads and shut-downs of packing houses during the past couple of years, due to proration orders, undoubtedly have played hob with the pay checks of many piece workers in the citrus packing industry. Demagogical agitators outfitted with pitiful appearing photographs and affidavits concerning some selected pay checks can raise a lot of hullabaloo, given the opportunity.

It is to be hoped that the gradual stirring of public sentiment over the country against some of these procedures may have grown to a point that they will be more or less out of fashion by the time the wrecking crews get around to the Florida citrus industry in real earnest.

Between August first and fifteenth price raisers were announced by the automobile industry running from fifteen to two hundred dollars per car at retail. That is just the beginning, it seems, of passing along to the public of the costs of last Spring's emotional orgy in Detroit under the guise of labor reform.

The base wage in Detroit auto plants, we are reliably informed today is thirty-six dollars per week. This is paid to the sweepers, a class of laborers rating in intelligence rather below that of our field hands. Somebody must pay the bill for such extravagance.

The drone, drone of an airplane, continuous and persistent. Somebody goes to the back door and listens. "Guess they're dusting Dr. Phillips' grove again." Thus does a one time sensation grow into a commonplace.

That earth subsidence in southern Idaho is a most peculiar thing. Old dame Nature taking a hand in crop reduction.

Florida continues to grow and grow in population. Continual increase in school enrollments over the peninsula attest to this as nothing else can. For school enrollments over the country as a whole are shrinking.

Few realize that school enrollments over the U. S. in first grade now are only about one-half of what they were only a few years back. In as much as practically all able bodied children are entered in first grade over the country this means that our national population is getting along toward the point of stabilization. That is hard to realize, when we have been accustomed to seeing national population figures zoom right along upward over a long period of years.

Vastly restricted immigration and a rapidly diminishing birth rate apparently are due to effect a tremendous change in our national

(Continued on page 16)

CRADLE ROCKED FRUIT

Will Bring
Higher Returns

Protective Features
Embodied In The
Designing Of

TOWNSEND Non-Bruise PICKING BAGS

Afford Full Protection Against
Skin Cracks, Scuffs and Bruises

— Those Breeding Grounds
for Mold and Rot.

Fruit Reaches
The Packing House
Sound and Whole

BECAUSE
This Soft Rubber
Rim Breaks
The Blow



GROWERS!

Assist That Your Fruit
Be Harvested In

Townsend
Non-Bruise Bags

Write For Our
Illustrated Folder

TOWNSEND
Sash, Door & Lumber Co.
Box 818
LAKE WALES, FLA.

Walker Sees Huge Demand For Grapefruit

Urges Floridians And Texans To Cooperate In Holding Up Prices

Charles H. Walker of Bartow, president of the Florida Grapefruit Growers League and one of the largest producers of grapefruit in the state, in a recent letter to Frank Hall, salesmanager of the Rio Grande Valley Citrus Exchange, forecasts an unprecedented demand for grapefruit during the coming year and urges Texans and Floridians to get together to maintain prices. Mr. Walker sees no prospect of over-production, believing that the public demand for both fresh and canned grapefruit and grapefruit juice will more than offset any immediate increase in production.

Mr. Walker's letter, portions of which were reproduced in the Texas Farming and Citriculture magazine, is as follows:

"I take this opportunity to bring to your attention a matter which is of vital importance to Texas and Florida grapefruit producers. My remarks may be summarized with the statement that next season, if we as growers recognize fully the market conditions affecting our crops and take full advantage of them, we will experience one of the most satisfactory seasons in the history of the industry.

"Florida has shipped in excess of ten million boxes of grapefruit to the fresh fruit markets this season. In addition, Florida's total commercial crop this season, therefore, approximated eighteen million boxes of grapefruit.

"The canning industry has packed in excess of ten million cases in Florida, Texas and Porto Rico. Responsible operators in the canning industry advise me that, while this is the greatest pack in history, it could have been increased twenty-five per cent and still we would have a bare market in August of this year. I cite these facts merely to show you the tremendous national demand which exists for grapefruit, either canned or fresh.

"According to the best information available today, every indication points to a Florida grapefruit crop of some fifty to sixty per cent of

the present season's production. This means that Florida will have available for canners and fresh fruit markets about eight million boxes less than last season. All of this volume will be bid for by canners, who depend upon volume for a successful operation and profits.

"In other words, Florida grapefruit will probably open next season with cannery grade selling for a minimum of \$1.00 a box. Further, canners will not be able to complete their requirements in Florida. The Texas field is the next which will receive their attention.

"I believe early grapefruit will bring one dollar per box and that the price will not go lower than seventy-five cents at any time in the season, and my opinion is that the average for the season will be nearer one dollar per box than seventy-five cents for canning grade grapefruit.

"Even though the reports which come to us indicate a twenty-five to thirty per cent increase in the Texas grapefruit crop, it will not be excessive as far as the totals available for the national demand are concerned. It is, therefore, important that all Texas growers realize fully the possibilities which exist concerning their production for next season. They should know its true worth and operate in some way to hold their fruit until they get that value for it.

"I am advised that speculative interests already are attempting to buy Florida crops at 75c to 80c. I have been further advised that a prominent speculative operator has sent a buyer to Texas to tie up as many crops as possible there, before Texas growers realize the situation, at as low a figure as possible.

"I have a perfectly selfish interest in urging you to influence Texas growers to hold their fruit and sell it on the high market which is inevitable. Quite obviously, if Texas sells low, it is liable to affect Florida's marketing position very materially. If on the other hand, Texas growers organize and cooperate with the growers of this state along the

lines mentioned to maintain the grapefruit market, we will all have an excellent season.

"It appears now that the consumption of canned grapefruit has increased so that some of the Florida canners are not able to fill their orders and it is the general belief that there will be very little canned grapefruit in the state by September, and that the canners will pack ten to twelve million cases next season, against eight million this year. In my opinion, there is not more than ten to twelve million boxes of Duncan or Seeded grapefruit in Florida, and possibly not that much. Therefore, grapefruit for canning hearts will no doubt be in demand by the canners, leaving the Marsh Seedless for the fresh fruit markets and the juices. Of course, the canning of juice will also be a part of the ten to twelve million cases to be packed.

"I will be very glad to assist in any way for getting Texas and Florida working together on this deal, and I believe that they can do so to their mutual advantage."

Federal Government Recognizes Florida "Color-Added" Plan

New Notice Permits Shipments of Colored Oranges Which Meet State Standards

Florida won Federal recognition of its work in controlling the artificial coloring of mature oranges by the "color added" process when M. L. Wilson, acting secretary of agriculture, issued a new notice which "extends indefinitely" previous regulatory notices that would have expired on September 1.

Florida Citrus Commission officials said the new notice means that shipments of "color added" oranges from this state after September 1

(Continued on page 15)

Treasure Hunting In Citrus Groves

By J. B. Welch

Bud sports may be discovered in citrus trees located in any district, and for this reason every tree in all orchards should be looked over systematically. Desirable sports have been found unexpectedly in orchard locations that were rather unpromising as to general conditions, though our experience thus far indicates that apparently desirable bud sports have been most frequently found in orchards where the location and cultural conditions have produced healthy trees.

The Time to Search

The best time for the search depends somewhat upon the kind of bud sport desired. If this should be an early-maturing sport, the search should be made sometime in advance of the normal maturing of the crop as a whole and before the fruits have assumed their ripe color in any given location. At such time, the early maturing oranges or grapefruit will be rather conspicuous, as a rule, by reason of their color characteristics. Similarly, if late maturing sports are to be looked for, they can most easily be found through a search after the general crop has matured. Our experience has shown that it is more difficult to distinguish late maturing sports than early maturing ones in the Southwest because climatic conditions frequently tend to color all of the fruits more or less during certain seasons regardless of their differences of maturity. Both early and late maturing strains of our commercial orange and grapefruit varieties are likely to be of value for certain districts, as for example, early maturity may be an asset in the desert districts while late maturing, or the tendency for the fruit to hang on the trees in good eating condition for a longer period than normal, may be of considerable importance to growers in some other sections.

When searching for bud sports that produce fruits with superior shape, size, texture, color, or related commercial and eating characteristics, the trees should be examined when the fruits are mature and before picking has begun. In addition to a special search for this purpose,

the pickers and their foreman should be requested to keep a lookout for unusual appearing fruits during the harvest of the crops. It will be helpful in this connection to explain to the pickers and foreman the object of the search and to instruct them as to marking the trees from which the sports arise, so that they can be located again for subsequently study. If sporting forms are found as individual limbs it is desirable that they may be reported before the fruit is picked so that the limits

of the variations may be carefully determined.

Where Sports May Occur

The bud sports may occur as small branches bearing one or a few fruits, as limbs bearing a considerable number of fruits, or as entire trees that have been unintentionally propagated from limb sports. Therefore, in searching for such sports, every tree should be looked over carefully keeping in mind the appearance of all of the fruits on each tree and any variation from the type



To Better Serve the
FLORIDA GROWERS

A New Organization

DOLOMITE PRODUCTS
INCORPORATED

has been formed to direct
the sales of

Dolomitic Limestone

Produced by the

Dixie Lime Products Co.

and the

Florida Dolomite Co.

Dr. O. C. Bryan, veteran Professor of Soils of the University of Florida, will as Director of Research of Dolomite Products, Inc., continue his important work. Valuable information and authentic data will be made available to the growers.

George B. Tripp, Jr.
Field Representative, Winter Haven



DR. O. C. BRYAN
DIRECTOR OF RESEARCH

J. H. RICKBORN
Field Representative, Lakeland

PRESIDENT
W. M. PALMER
OCALA
VICE PRESIDENT
S. D. GOOCH
LAKE WALES
SECTY. & TREAS.
W. C. FARMETER
OCALA

Now!
DOLOMITE PRODUCTS
OCALA
INCORPORATED
FLORIDA
DOLOMITE improves soil condition-produces BETTER CROPS

of fruit which is normal for the variety.

Where only one or two fruits are borne by the sport branch it is often-times impossible to obtain buds for progeny tests at once. It is sometimes advisable in these instances to mark the small branch or small twig and prune out nearby branches in order to force the growth of the sport branch for further observation and possible propagation.

In the case of entire-tree variations, it is sometimes necessary to prove through progeny tests as to whether the variations are inherent ones or the result of rootstock or other environmental influences.

Limb sports bearing several fruits are most likely to be of interest and importance so far as this kind of search is concerned. In the first place there can be little doubt as to the nature of their origin, and in the second place it is usually possible to make a direct and satisfactory comparison of the characteristics of the fruits borne by them with those on the normal limbs of the same parent tree. In looking for limb sports it is advisable to walk entirely around each tree at the proper season and look the fruits over carefully, not only those that are easily seen from the outside but also those that are borne on the inside of the tree tops. After a little experience, it will usually be possible to distinguish limb sports through differences in the appearance of their fruits as contrasted with that of the normal ones. If all persons connected with orchard operations are trained to look for limb sports, it is likely that some may be found during cultivation, irrigation or other orchard work, as has been demonstrated to be the case in several instances within the writer's observations.

When an apparent bud sport is found it should be carefully marked so as to insure finding it again for further observation. A rather large tag attached to the tree, or a small rope tied loosely around the particular limb so as not to interfere with its future growth, or both, are desirable. In addition, the location of the tree in respect to number of the row, the number of the tree in the row, always counting them from some fixed orchard point, as the irrigation head, will enable those interested to find the tree when necessary without difficulty.

Progeny Tests

It is very important that all ap-

parently desirable bud sports be tested by propagation as soon as possible. These tests are commonly called progeny tests and are necessary in order to determine as to whether or not the characteristics of the parent limbs or entire trees are perpetuated through bud propagation. The progeny tests can be made through top-working older, healthy trees in order to obtain a quick reading, or by budding seedlings as is ordinarily done in commercial nursery practice. While it requires some time to carry out progeny tests they are essential to a dependable judgment of the merit of the sports and worth the time and effort required in making them. From the progeny tests, an intelligent decision can be reached as to the possible commercial value, if any, of the sports and a selection made for a commercial orchard test that will give final and safe information as to the value of a new strain for the conditions under which the test is made.

Value of Search

It is sometimes desirable to observe the fruiting of entire trees for at least two seasons in order to determine whether or not it is consistent from year to year. With experience, and particularly with limb sports, this delay is usually not necessary as trained observers can decide rather definitely the nature of the abnormal forms.

The discovery of a new and improved strain originating as a bud sport which may be a valuable contribution to the progress and improvement of the citrus industry, is within the bounds of possibility for all growers or those who work with or study orchard trees.

During this same search for valuable variations undesirable strain trees can be located in the orchards for top-working or replanting, and inferior limb sports in otherwise normal trees can be removed through pruning.

The training in recognizing varietal and strain characteristics which will result from the carrying out of this work, will be an asset to everyone connected with the culture of our commercial citrus varieties. This experience may be of value from several points of view and especially to those who are endeavoring to improve the commercial quality of their citrus crops.

Use of X-ray on Buds

With the increasing use of X-rays on buds, it seems almost certain to the writers that the lists of varie-

ties originating from bud sports will be rapidly increasing within the relatively near future. In general, it seems apparent that most of the combinations of characters brought about through cross-pollination are also likely to be found occurring in bud sports. With X-rays and other methods of stimulating somatic variations, it is not beyond the range of possibility that bud sports may eventually become practically as important a factor in plant improvement as is cross-fertilization in the case of plants that are commonly reproduced sexually.

Promising Discoveries

Through the medium of daily newspapers and agricultural periodicals, the writers have repeatedly suggested to growers and other interested persons the importance of a systematic search for bud mutations in their orchards and plantations. The abundant response to these requests indicates an active interest in this pleasant work on the part of plant growers. Some of these discoveries are now under commercial test with the promise of rather valuable additions to the varieties of those plants under consideration.

There is no longer much question as to the commercial importance of bud mutations in many of the horticultural crops that are propagated vegetatively. The search for and study of bud mutations has been rather intensive during the past twenty or twenty-five years, and many new forms have been discovered. Some of these are now of considerable commercial importance and most of them are of scientific interest.

Early Comments on Mutations

The earliest recorded fruit bud mutations that have come to the attention of the writers were reported by Peter Collinson in a letter to Linnaeus April 3, 1741. He told of a russet apple produced on a green-

(Continued on page 14)



**SARASOTA
FLORIDA**
on the

**GULF OF MEXICO
DE SOTO**

HOTEL

Offering much
in quiet, home-
like comfort,
moderate c's
and conveni-
ence. Open all
year. . . Equable year-round tem-
perature. Splendid beaches, fa-
mous fishing grounds. Rates
\$1.00-\$1.50 single; \$1.50-\$2.00 dou-
ble. JOHN D. MURRAY, Prop.

Charter Of Citrus Growers' Committee Of Eleven

The Citrus Growers' Committee of Eleven is hereby formed and organized for the purpose of securing for the commercial citrus growers of the State of Florida representation solely as growers in drafting a Citrus Marketing Agreement and for the protection and advancement of their rights as growers.

Section 1. The Citrus Growers' Committee of Eleven derives its authority solely by election or appointment of its various members by commercial growers of citrus fruit in the State of Florida who do not ship, handle or sell the citrus fruits of others as a business for profit, and who do not receive a salary from any marketing organization or have any investment in any non-cooperative marketing agency. No one is eligible to be a member of this committee or to vote for members of this committee who does ship, handle, or sell the citrus of others for profit, as a business.

Section 2. The first members of this committee shall be the following:

(a) W. B. Coarsey was selected for membership by a meeting of growers held at Tampa, Florida, on July 19, 1937. E. H. Enebaus was elected alternate.

(b) Frank T. Laird, president of the Lake County Horticultural Association which has sponsored the formation of the organization, and who was elected by a meeting of citrus growers held in the city of Leesburg, Lake County, on Wednesday, July 7.

(c) Joe A. Scarlett who was selected by a committee of four growers, who were elected at a meet-

ing of growers held at Deland, Volusia County, Florida, on July 16.

(d) T. C. Hawthorne, who was selected by a committee of four growers elected by a meeting of growers held in Orlando, Orange County, on July 15.

(e) A. W. Young and John W. Kerr, who were elected by a meeting of growers at Ft. Pierce, on July 15.

(f) Earl W. Hartt, who was elected by a meeting of growers at Ft. Myers, on July 14.

(g) P. R. Porter and A. F. Pickard, who were selected by a committee of eight, who were elected at a growers meeting held in Lakeland, Polk County, Florida.

Section 3. Two additional members of this committee shall be elected as members by the foregoing nine to represent citrus growers of the State of Florida at large.

Section 4. Membership on the committee shall date from approval by the Credentials Committee and continue until successors are elected by meetings of growers in the seven citrus districts, as defined in the Florida Citrus Commission Act of 1937, or until their successors have been elected by a majority of the members of this committee. Any director's term may be terminated by a majority vote of eight members of this committee for failure to act or for other causes satisfactory to the committee.

Section 5. The chairman of this committee may call general or district meetings of this committee or of growers and members of the committee may call district meetings of growers within their own district.

Section 6. This committee shall hold monthly meetings on the second Monday of each month, at 3:00 P. M., meetings shall be held in the seven citrus districts in rotation in the following order:

The first meeting shall be held at Lakeland, the second at Tampa, the third at Leesburg, the fourth at Ft. Pierce, the fifth at Ft. Myers, the sixth at Winter Haven, the seventh at Deland, the eighth at Orlando, and thereafter repeating in the same order.

Section 7. Annual meetings of growers to elect members of this committee shall be held at such places as shall be designated by this committee within each of the seven citrus districts, sometime during January of each and every year. Should the chairman or members of this committee fail to call such district meetings or growers the Lake County Horticultural Association may call such meetings.

Section 8. All members of this committee shall be entitled to vote by mail upon all matters that shall come before meetings of this committee and if any member is absent from a meeting the Secretary of this committee shall immediately certify to said absent members all motions or resolutions that have been presented to the committee and the said

FROST PROTECTION

For 20 years National-Riverside Heaters have saved millions of dollars to citrus, deciduous and truck growers. Low in Cost and High in Efficiency.

Write

National-Riverside Co.
Covina, California



IT

Write for
LEAFLET F-136

- Supplies nitrogen—more pounds per ton than any other standard carrier.
- Also supplies lime that sweetens the soil.
- Holds fast to the soil—is not washed out by rains.
- Has even, long-time effect required to produce quality fruit.
- Is especially suited for use during the rainy season of early summer, or during the fall when the cover crop is being cut into the soil.

AMERICAN CYANAMID COMPANY • ORLANDO

'Aero' Cyanamid is Nitrogen plus Lime

absentees shall have one week from the date of the mailing thereof in which to register their vote upon said motions or resolutions with the said Secretary. The chairman or first vice chairman or second vice chairman and any two members of this committee shall constitute a quorum for the purpose of certifying motions and resolutions to absentee members and if at least eight votes are cast, either in person or by mail, the majority thereof shall be considered and taken as the will of this committee.

Section 9. This committee shall elect a chairman, a first vice chairman and a second vice chairman, a secretary-treasurer and an assistant secretary. It shall be the duty of the chairman to preside at meetings and to call district meetings of growers as provided in section 7. In his absence or disability the first vice chairman shall perform these functions and in the absence of both the chairman and first vice chairman the second vice chairman shall perform these functions. The secretary-treasurer shall keep accurate records of all the acts of this committee and of its income and disbursements. The assistant secretary shall keep a record of the acts of this committee in the absence or disability of the secretary. The regular meeting in February of each year shall be the annual meeting of this committee, at which officers for the ensuing year shall be elected. All officers shall hold office for one year or until their successors are elected and qualified.

Section 10. In all elections districts shall be entitled to the same number of members on this committee as their district is entitled to on the Florida Citrus Commission. The members at large shall be elected by the members representing districts. Selection for districts shall be by committees elected for that purpose by meetings of growers within the district; said meeting may be called, in the first instance, by the member representing that district; in the second instance, by the chairman of this committee; in the third instance by any three members of this committee; and in the fourth instance by the Lake County Horticultural Association; or temporary members may be elected by this committee in the discretion of said committee.

Section 11. Every member of this committee and/or his district meeting shall have the right to appoint or elect one or more alternates

to serve in his stead upon the committee, provided that the committee, by an affirmative vote of at least eight members may refuse the right of any alternate appointed by a member to act with it.

Section 12. This Charter may be amended by affirmative vote of seven members.

IN WITNESS WHEREOF all of the above members hereof have hereunto set their hands and seals this 26th day of July, 1937.

TREASURE HUNTING IN CITRUS GROVES

(Continued from page 12)

fruited tree, and of peaches and nectarines produced on the same tree.

On April 4, 1815, Thomas Andrew Knight, addressing the Horticultural Society of London, declared his belief "that many varieties of fruit which are supposed to be totally distinct have been propagated from branches of the same original tree, and that few, if any, varieties of fruit can, with strict propriety, be called permanent, when propagated by buds or grafts."

The earliest reference to a fruit variation in the United States which has been found is that of Cole, who in 1849 reported on the Red Russet apple, which he said "seems to be a cross between the Baldwin and the Roxbury Russet." An article in his New England Farmer in 1850 suggested the sport origin of the variety and another article by Sanborn in the same periodical in December, 1852, gave a detailed description of its origin as a bud sport.

Many Varieties of Mutations

In peach, pear, plum and cherry varieties a number of strains that originated as bud sports have become commercially important during recent years. Most of these differ from the parent variety in the time of maturity of the fruits, in color, size and shape of fruits, and in size or amount of seeds. Many others are in process of progeny testing both experimentally and economically. This is also true to some extent of grape, youngberry and some other fruits.

In roses, dahlias, chrysanthemums, ferns and many other flowers and ornamental plants, the list of bud sport varieties now in quite general use is a long and important one, as is well known by all workers with these plants. The possibility that new forms of many flowers and shrubs originate frequently as bud varia-


tions and remain constant under commercial propagation has been well known to growers for many years, but even with that knowledge, the possibility that variations of this kind were constantly occurring in fruit varieties was usually overlooked or actually denied until quite recent times.

Research Just Begun

There has been some progress made in the study of the stimulation of the frequency of bud mutations in certain plants through irradiation of somatic tissues with X-rays. It seems probable that the exploration of this field for research has just begun and that the future studies along this line will be of great value to some of our horticultural and agricultural industries.

The increasing number of growers, professional horticulturists and scientific workers who are interesting themselves in this subject makes it certain that major advances in our knowledge regarding bud mutation and bud selection still lie ahead.

NOTE. A part of the above article has been reproduced from the Journal of Heredity through the courtesy of The American Genetic Association organized in 1903 to promote the increase and diffusion of knowledge regarding heredity. A bibliography of bud mutation articles and a list of articles on plant breeding may be obtained by writing to the American Genetic Association, Victor Building, Washington, D. C.



**JACKSONVILLE'S
LARGEST and
FINEST HOTEL**
300 Rooms
300 Beds

**The
ROOSEVELT
JACKSONVILLE
FLORIDA**

Charles Gibson, Manager

"Conveniently located to the downtown business, shopping and theater district. Every room an outside room with private bath, (no count) circulating hot water, radio, fan and bed reading lamp. Suits of pajamas, bedroom and bath. Superior cuisine and service in The Palm Grill, and in The Roccoco Restaurant."

**All Outside Rooms—No Count
Circulating Hot Water in every room**

77 Rooms—Single with Private Bath	\$2.00
44 Rooms—	\$2.50
55 Rooms—	\$3.00
66 Rooms—	\$3.50
23 Rooms—	\$4.00
11 Suits—Parlor Bedroom & Bath—	\$4.00
24 Sample Rooms with Private Bath	\$4.00

Slight increase in Rates for Double Company
Very Attractive, Weekly and Monthly Rates

A Robert R. Meyer Hotel

FEDERAL GOVERNMENT RECOGNIZES FLORIDA "COLOR-ADDED" PLAN

(Continued from page 10)

will be recognized by Federal authorities as complying with the Federal Food and Drugs Act when they meet the standards established for such fruit by the 1937 Florida "Color Added" Act, and have been colored, stamped, inspected, etc., in accordance with the Commission's recently revised regulations.

About two-thirds of Florida's commercial orange shipments in the 1936-37 season were "color added," and fruitmen report that the improved appearance of such fruit increased the returns received by growers. All shipments of "color added" oranges are inspected by agents of the Commissioner of Agriculture, and must not only meet higher maturity standards than required for non-colored fruit, but must also show by test to average more than 4 1/2 gallons of juice per box.

Standards required for "color added" Florida oranges in the 1937-38 season will be even higher than those observed last season, the State Leg-

(Continued on page 19)

EXCHANGE HEAD SEES

GOOD CITRUS SEASON

(Continued from page 7)

sidered even insufficient for bare existence. In my opinion, it will be well for the industry to look this situation over carefully and handle it themselves, rather than to have the CIO dictatorship come in and tie up the industry at a great loss to labor and growers alike.

"The Florida industry can expect to obtain some assistance from its legislative program. It should help to prevent the shipment of green fruit, the unethical and harmful marketing practices of certain shippers, and other injurious phases of fruit handling. This, however, is insufficient. California has a marketing agreement. Texas has a marketing agreement. It is my sincere opinion, that Florida, as well, needs the application of marketing control which is available only through such an agreement. The trade as a whole are very strong for a marketing agreement in Florida. They have experienced the increased confidence which it creates. They know that a marketing agreement assures the purchase and sale of greater volumes of Florida fruit at higher and more stable prices. While the grapefruit crop

THE CITRUS INDUSTRY

Fifteen

this season is smaller, I am positive that, with a marketing agreement, we can expect every cooperation of the Federal government in pegging the price at satisfactory levels as it did in the past. I hope every grower in the state will do all within his power to talk for and demand the signing of a new agreement for the coming season.

"If a sound marketing agreement is written and signed for operation during the coming season, it is safe to say that its benefits will not be

hampered by injunctions. A recent favorable decision on a test case of the marketing agreement in the Federal courts in California, together with the reorganized court plan, assure this fact. Under the new court regulations just passed by Congress, it will be impossible for any one judge to issue injunctions to interfere with acts of Congress. Such injunctions may be granted only when passed upon by a three judge court. That danger at least is removed for the coming season."

Twelve Important Words!

The right plant foods in the right amounts at the right time! These twelve words sum up the secret of getting most for your money when you buy fertilizer . . . and most out of your crops when picking time comes. Gulf Brands of Fertilizer, because they are "keyed to your soil" give you the right plant foods in the right amounts — and the Gulf Field Man in your section will tell you the right time to use Gulf "Friendly Fertilizers" for better crops. Ask him to call — he may save you money.

For Everything
that Grows
in Florida—use

GULF

Brands of

FERTILIZER





THE GULF FERTILIZER COMPANY

36th Street, South of East Broadway, Tampa, Florida

IMPRESSIONS

(Continued from page 9)

scheme of things are long. Some of us will not be here to see them, but seemingly they are due to change every present and past problem. Continuing increase in housing and in production of many things will then go out of fashion. The whole job of thinking is likely to be different.

Most interesting, a pamphlet of the Foreign Policy Assn. compiled by real sharks on the study of population trends. Of course, we knew that the population of France has been very slowly decreasing for several years. We had not known, however, that the British Isles more recently have been just about stabilized, and that slowly diminishing ratio between births and deaths is just about being reached. Startling, to us, was the accepted conclusion that these U. S. A. were slowing up in population increase at a remarkable rate. Still more startling the announcement that our U. S. population may be expected to be stabilized by 1985. That is less than fifty years hence.

Thereafter, if the present U. S. A. are left alone, without disturbing outside influences, these exceptionally qualified observers feel sure that in the next couple of centuries or so Continental U. S. may be peopled by a nation gradually shrunk to seventy-five million souls. What will that do to real estate?

But don't run out and start digging up grapefruit trees—yet.

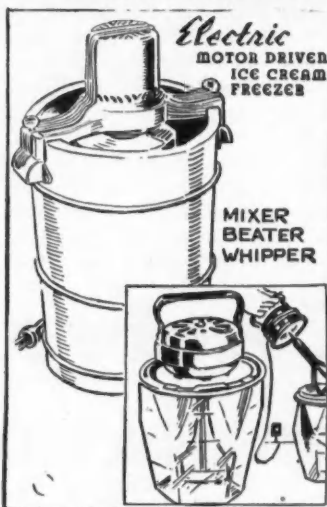
For other peoples in other parts of the globe continue to multiply exceedingly. If they don't move in on our successors hereabout, they may furnish the consuming power that is needed to make markets.

A lot of changes in grove ownerships. Sol Wittenstein of Orlando suggested we check up on them in the principal counties and write a piece on the subject. Just taking a look at transactions involving forty thousand dollars or more, and there are certainly a lot of 'em. Too many to assemble in that manner. Certainly Florida groves are right now in a good place in the estimation of outside investors.

Capt. W. B. Willett, the Maitland grower, personally nominates the well known Kenneth McPherson of that place as the world's worst, and

WHAT NEXT?

From THE MERCHANDISE MART



A fully motorized kitchen seems destined to relieve the housewife of all physical exertion, as witness the frozen dessert maker and the combination mixer, beater and whipper. The latter may be used in any convenient bowl or pan in addition to that supplied with it. The freezers are made in miniature or large sizes with the silver dome on the top enclosing the motor and gear drive assembly.

most amateurish, summer widower. The moonings and moanings of the said McPherson during his temporary widowerhood this summer, Capt. Willett declares, put the latter in a class by himself.

So desperate became the McPherson's mental plight that fellow residents of the community conspired behind his back to break the otherwise monotony of his existence by one device or another, in addition to their normally to be expected invitations looking toward feeding the McPherson tapeworm. Recently the peak of such activities was reached when three attractive young ladies, desirous of doing their part in this worthy Maitland civic enterprise, invited the bereft McPherson upon a sailing party on Lake Maitland. Then, just when sweet summer breezes and girlish laughter were beginning to assuage the grief of the bereft one to some degree, a sudden squall capsized the schooner, and the occupants had to swim for it.

Leaving the well known McPherson all ashiver with the thought that through his careless carousings

something serious might have happened to him in his wife's absence.

Which somehow reminds us of the glorious opportunity for a nice Hallowe'en stunt to enliven Maitland. We cannot imagine why the youth of that section have not long ago embraced it. It is to doctor the spelling of the legend "Nevillcroft," which appears on the sides of Kenneth McPherson's station wagon, by painting out the initial "N" and substituting therefor the letter "D." Of course we'd only use water colors, so that in time the rains could restore the original.

Right at this point in this writing comes the formal announcement of the CIO set-up which announces its aims, "To bring to the citrus region of Florida that prosperity and well being which can only be based upon the decent wages, hours and working conditions of the men and women employed in its major industry." Right interesting.

President of the executive committee is Geo. B. Jackson of Orlando, with other members as J. T. Hardee, first vice-president; Leroy Nichols, second vice-president; Henry Anderson (unknown to this writer), third vice-president; Edward Norman, secretary-treasurer; and David Roebuck, assistant secretary-treasurer.

Jackson has been well press agented around Orlando. Recently he figured in the finding, scattered about and buried, in a sand pit near Winter Park of over two hundred bombs. Jackson came forward and claimed them as having been stolen from him, saying they were for fireworks displays. Mayor J. F. Moody of Winter Park, the police of which destroyed almost all of the bombs before ownership was disclosed, stated publicly that the explosion of one of the bombs, in his opinion, would have been sufficient to wreck completely everything within an ordinary room. Jackson has been in the fireworks business in Orlando for several years. Where his interest in the citrus industry developed is not made plain.

Jackson, as quoted recently in an Orlando paper, expects trouble. He said: "I cannot help but feel that trouble will develop because there has been rioting and fatal strife wherever the CIO has marched. Don't misunderstand me. It was not caused

September, 1937

THE CITRUS INDUSTRY

FREE PUBLIC LIBRARY
JACKSONVILLE, FLORIDA
Seventeen

by the CIO but by other groups that entered the labor battle. Communists *** do not want strife and bloodshed, but the fight undoubtedly will be forced by so-called red-blooded Americans who will form vigilante associations to combat the CIO movement."

In the evening's mail a pitcre postcard of Seattle, mailed, however, from Butte, Montana, from Mrs. Dr. E. R. McMurray of Bartow. "Aunt Mac" to us since the days when we lived as next door neighbors. Discussion of the splendid auto tour which those Bartow women were enjoying. Then a sudden choking gasp from our wife who was reading the evening newspaper. A despatch, brutal in its brevity. Aunt Mac dead, as a result of an auto accident in Wyoming. That is our tenuous hold upon the thing we call Life.

Citrus trees are exactly like human beings when it comes to the matter of food — they must have a proper and ample diet if they are to function properly.

In writing advertisers please mention The Citrus Industry.

Special Bulletin Of State Plant Board

Rules and Regulations made by the State Plant Board Pursuant to the Florida Plant Act of 1927.

The following rules with respect to the movement from certain areas in the State of Florida and the State of Alabama of designated plants and plant products on account of the danger of distributing the insect known as the White-Fringed Beetle (*Naupactus leucoloma* Boh.) were passed by the State Plant Board of Florida August 6, 1937. These rules have the full force and effect of law.

Rule 49-A. In order to prevent the introduction into or the further dissemination within the State of Florida of the insect known as the White Fringed Beetle (sometimes called the Argentine Weevil) (*Naupactus leucoloma* Boh.) the movement into the State of Florida of: (1) Sand, soil, compost and manure either as such or in connection with farm products, nursery stock or other plants; (2) all types and kinds

of hay, baled or unbaled, corn shucks, corn "fodder" and "roughage," corn in shucks, velvet beans and peas in pod, velvet beans and pea hulls; (3) potatoes, sweet potatoes and sweet potato draws, vines and cuttings, sugar cane, peanuts and chufas; (4) seed cotton and cotton picking bags; (5) nursery stock and other plants with roots; (6) forest products such as lumber, piling and poles; (7) farm implements, household goods and scrap iron, from such areas in Alabama as are now known and declared to be infested or likely to be infested, or may hereafter be so declared by the Alabama Department of Agriculture or the United States Department of Agriculture, is prohibited unless such materials are accompanied by a certificate issued by a duly authorized State or Federal plant quarantine inspector, setting forth in substance that the material is (1) apparently free from infestation, or (2) has been produced (Continued on page 21)

FOR YOUR NEXT APPLICATION
USE

NITROPHOSKA

- A Rich, Complete Citrus Fertilizer — six grades.
- A plant food ratio for every requirement.
- Even feeding. Prompt acting and long lasting.
- Produces BETTER crops at LOWER cost.

Calcium Nitrate

Two plant foods for the price of one. Arrange your seasonal requirements now.

JACKSON GRAIN CO.

State Distributors
TAMPA, FLORIDA

Tennessee Ground Open
Hearth

BASIC SLAG

Approved by Agricultural Authorities
as a Valuable Soil Builder and source
of Plant Food

Unexcelled soil amendment for
citrus groves

ANALYSIS

Total Phosphoric Acid (Min.)	8.00%
Iron Oxide	18.50%
Silica	8.00%
Magnesium Oxide (Lime)	5.50%
Calcium Oxide (Lime)	45.85%
Manganese Oxide	3.00%
Equivalent Manganese Sulphate	6.39%
Fineness thru 100-mesh screen	Over 80.00%

Economically priced
Sold by Dealers throughout Florida

Write us for information and prices, or
see a member of our field staff.

JACKSON GRAIN CO.

Tampa Florida
Primary Distributors

Observations On Citrus Conditions In Brazil

BY HOWARD S. FAWCETT
Professor of Plant Pathology, Citrus
Experiment Station, Riverside
Cal., in California Citrograph

During a five month stay in Brazil, I had opportunity to visit most of the citrus growing areas there. This was made possible by the Instituto Biologico of the state of Sao Paula, where I was asked to collaborate with Dr. A. Bitancourt, sub-director of this institution, in a survey and study of citrus diseases. Through the director and subdirector of this institution visits to other Brazilian states were made.

In total orange production, Brazil is now estimated to be third or fourth. The citrus areas in Brazil, estimated to contain from 12 to 15 million trees, are scattered and extend from the tropical regions where there are no frost hazards, to the subtropical regions where an occasional light frost is experienced. The distance in latitude in Brazil in which citrus is grown is from about 7° to 32° south from the equator, a distance along the coast of about 2,200 miles. The altitude of these areas varies from a comparatively low height above sea level near the coast to about 1,500 to 2,500 feet above sea level, farther back from the coast. Occasionally citrus may be grown as high as 3,000 or more feet above sea level. For the most part the citrus in Brazil is grown without irrigation, and in most of the areas the young orchards grow well without fertilization. No frost protection is necessary.

The two most important citrus-growing areas are, first, that in the neighborhood of Rio de Janeiro, where it is estimated that there are about 4,500,000 trees, and the regions in the state of Sao Paula with 7,200,000 trees.

The principal diseases in this region appeared to be brown rot gummosis or foot rot, psorosis, zonate chlorosis, melanose, stem-end rot and sweet orange fruit scab. The worst insect pests were rust mite, various scale insects and fruit flies. The situation as to diseases and pests was more like that of Florida than of California, although some diseases and pests not found in Florida were present. The sweet orange fruit scab, an important disease in some orchards, is a form of scab quite different from that found in Florida, and so far as is known, occurs only in

certain areas in South America. The Florida sour scab is also present and is injurious to lemon, sour orange and some other varieties.

Zonate chlorosis, probably due to a virus, is now known only in Brazil. It shows its presence as a conspicuous leaf pattern of chlorotic zones or bands, alternating with light green to normal green bands. On fruits also occur chlorotic bands which become necrotic and injure the export value. Many other minor diseases also occur.

The growers are finding that in order to obtain standard fruit for export they must spray, not only against scale insects, but also against rust mite, melanose and sweet orange scab. The government has placed rather high standards on this export fruit. It was estimated by one of the large growers that 20% of the fruit that was picked last year had to be discarded from the export shipments. Much of this discarded fruit is readily sold on the local markets.

One exceptional orchard in this region was of great interest because of the application of up-to-date facts and principals in its development. The owner, a civil engineer in Rio de Janeiro who had been to the United States and had read much about citrus culture, started out to do everything the best possible way. Seeds were obtained from the best trees, only the best and most vigorous seedlings were moved from the seed-bed, and only the best nursery trees (about 50%) were moved to the orchard. In budding, only bud wood from certain parent trees of considerable age, selected for their vigor, trueness to type and freedom from disease were used. These were numbered and careful records were kept of the buds which came from each parent tree in the nursery. Records were then kept of the source of each tree as it went to the large 35,000-tree plantation.

Maps, such as a good engineer can make, and a card index were kept, by which each block and each tree is accurately known as to its origin and history. The trees were well-cared for, were vigorous, beautiful, and uniform, a remarkable example of what can be done with thorough planning and application of known

methods. I had to admit that in few (perhaps in only one) orchards of comparable size in California were records so complete. This orchard, of course, was not typical of Brazilian methods, as it would not be typical of present California methods, either.

In this orchard, as well as many newer, up-to-date orchards in Brazil, brown rot gummosis is avoided by planting the trees on mounds or ridges eight inches or more above the surrounding surface of the soil. By this method and with the use of bordeaux wash around the base of the tree in a climate and on soil very favorable to brown rot gummosis, only three or four cases out of 35,000 trees have occurred in six years.

In the state of Sao Paulo the conditions are quite different from those at Rio de Janeiro. Most of this region is between 15,000 to 25,000 feet in altitude and farther south. It is subtropical rather than tropical, and is apparently more suited to raising Bahia (navel) oranges for export than is the Rio de Janeiro section. The Bahia, therefore, is the predominating variety and the Pera less important. Tangerines and grapefruit are also raised in considerable quantities, the latter for export only. Some of the principal citrus-growing centers in this region are Limeira, Piracicaba, Sorocaba, San Sebastian and the Central section. In this region the oranges are picked, usually from April to June, while in the Rio de Janeiro region previously mentioned the fruits are harvested from June to November.

The more important diseases in the state of Sao Paulo are brown rot gummosis or foot rot, leprosis in some sections, psorosis, and sweet orange fruit scab. Sweet orange fruit scab is more prevalent and injurious to fruit in most sections and requires from one to three sprayings of bordeaux mixture to control it. Leprosis is one of the most injurious diseases in the Limeira section. Zonate chlorosis is not so injurious in this region as in Rio, except in some places in the Central region. Melanose and stem-end rot are less prevalent in the fruit.

In the Sao Paulo regions as well as those of Rio de Janeiro, there

appeared to be a great deal of activity in the increased planting and the development of large citrus areas.

It was roughly estimated that in both of these exporting areas the increase in exports would probably be from 5 to 10% per year for the next few years. The rapid development of the citrus industry in these regions is indicated by the fact that a large percentage of this citrus was not in existence eight or ten years ago.

In the other states of Brazil, where citrus is grown, most of the fruits are consumed locally or in other states of Brazil, but the interest in some of these fruits is increasing to such an extent that they will probably also have exports in the future.

In Bahia, the original home of the Washington navel orange, production of oranges has scarcely kept up to the local demand. The agricultural department of the state of Bahia is now fostering the industry by raising nursery trees to be sold at a low price to the growers — approximately 9c per tree.

In the northernmost region visited, in the state of Pernambuco, the climate is drier and the development of irrigation will probably be necessary before any very extensive citrus can be developed there.

After visiting and making a study of the various conditions for the growing of citrus in Brazil, it appeared to me that possibilities in the extent of suitable soils and locations, with freedom from frost, for citrus growing, are very great, and that the handicaps mentioned in the way of diseases and pests are on the way to being successfully overcome. Unless some unforeseen hindrance occurs, the industry will probably continue to develop rapidly, and as a consequence exports will become very much greater than at present.

FEDERAL GOVERNMENT RECOGNIZES FLORIDA "COLOR-ADDED" PLAN

(Continued from page 15)

islature having recently enacted a law which raises the solids-acid maturity test for such fruit half a point and makes it the highest test applied to any oranges. Regulations of the Commission limit the degree of color which can be added to early, mid-season and late varieties of oranges, and describe how each fruit must be stamped, in accordance with Federal law,

Florida fruitmen contend that artificial coloring of many orange crops is necessary because they do not attain the full, uniform color demanded by consumers. They point out that color itself is not a true indication of ripeness, that oranges from the same tree vary greatly in color even though all are of the same eating quality. Some early varieties are still green in color when mature, while late varieties reach full color before ripening and take on a green

color again when they are good to eat.

"Color added" oranges are lightly sprayed with a harmless food color, like that used in butter, candies, cheese and ice cream. Their color does not penetrate the skin or in any way affect the eating quality of the fruit. The peel can be used for marmalade and preserves. Most oranges from all producing states have been colored for many years, the same as other fruits.

Gas Your Fruit In Half The Time

We have been working a year and a half to improve the method of gassing fruit and experimenting with different gases. We have found a combination of gases which will color grass green fruit in from 24 to 48 hours.

You can color twice as many fruit in the same coloring rooms with no addition to your coloring room capacity. You will not have to buy any more field crates for next year.

The damage to the fruit will be a great deal less because holding in the coloring room for 72 to 80 hours causes great losses, not only in decay but also in shrinkage. The use of this gas will thereby save you from 5 to 10% in the weight of your fruit in shrinkage alone, to say nothing of decay. Your fruit would be on the market two days sooner.

Wont you please send a man over here with some fruit for us to color? Send as many boxes as you want. We suggest one or two boxes of fruit, both grapefruit and oranges and you hold some over at your office for checks. He can stay here while they are being colored and take the fruit back with him.

B. C. SKINNER,

Distributor
Dunedin — Florida

THE WORK OF THE AGRONOMY DEPARTMENT OF THE STATE EXPERIMENT STATION

(Continued from page 5)

injury.

(c) Peanut variety tests show the Florida runner to be our highest yielder and best keeper in the ground for hogging off and Spanish to be our best yielding early maturing bunch type.

(d) Soy bean variety tests show that none of the common commercial types are consistently good seed yielders under Florida conditions, though the following are satisfactory for forage on our better grades of land: Ototan, Laredo, Biloxi, and Mammoth Yellow. The Ototan is root-knot tolerant, the Laredo is resistant and the Biloxi and Mammoth Lellow are susceptible to root-knot injury.

(e) Cotton variety tests show that wilt resistant cotton such as Clevevilt, Rhyne's Cook and Lightning Express are best suited to Florida and the Seabrook seems to be the best strain of Sea Island cotton thus far tested.

(f) Oats and Rye variety tests show Appller and Hastings 100-bushel oats best for Western Florida and Suwannee County Black Hull best for Central Florida. Florida or Georgia Black rye seem best with Abruzzi a fair second.

(g) Sugar cane variety tests show Cayana, P. O. J. 213, C. P. 807 and Co 290 to be our best syrup and forage sugar canes, these being either resistant or tolerant to mosaic.

(h) Sorghum variety tests show Texas seeded ribbon cane, Japanese Honey or Sugar Drip, Sumac and Orange sorghums as our best yielding silage types, while none of the grain sorghums except Shallu are well suited to Florida.

(i) Silage crop studies show corn, sorghum, sugar cane and napier grass to be best suited to Florida. Pasture investigations show that Florida can grow more different kinds of pasture grasses satisfactorily than perhaps any other state in the Union, though we are short on satisfactory leguminous permanent pasture plants and as a result have to depend largely on true grasses. The following grasses have been shown to be satisfactory within certain limitations: Carpet, Bermuda, Bahia, Dallis, Centipede and Para. The first mentioned grasses have been shown by actual grazing records to produce from 137 to 220 pounds of beef (live weight) per acre per grazing season as compared to about 15 pounds of beef per

THE CITRUS INDUSTRY

acre per grazing season from native (wire grass) grass pastures.

Pasture grass seeding experiments show that grasses can be planted in Florida practically any month in the year and good results gotten if the soil is well prepared in advance of seeding and good seed is used.

Experiments show that pasture plants kept closely grazed remain in a vegetative state and as a result are high in protein and minerals and palatable and nutritious whereas such crops allowed to reach more mature growth stages through lack of grazing or mowing are less palatable and nutritious. Increased vegetative vigor as a result of close grazing or mowing induces good sod formation and reduces weed infestation. Increased vegetative vigor as a result of close grazing or mowing results in more efficient use of fertilizer applied to pastures.

A study of a number of crop rotations applicable to Florida shows that in all cases crops grown in rotation yield better than when grown on the same land year after year, e. g. cotton and corn in a two year rotation give more satisfactory yields than where such crops are grown year after year on the same land and corn and peanuts year after year on the same land have not yielded as well as corn and peanuts in a rotation with other crops.

Crop breeding work with corn, peanuts, oats and sugar cane is under way. Two sweet corns have been released, namely, Florida 191 and Suwannee Sugar. The former for home use and the latter for growing and shipping to northern markets. The breeding work with peanuts and oats has not yet developed anything for release to the farmer though some promising material is under study. The sugar cane breeding at the Everglades Station with its accompanying testing of these new canes at Gainesville and elsewhere has reached the stage where several of these new canes will doubtless soon be released for general use both for syrup and forage purposes as several seem very promising.

Winter cover and soil building crops of Hairy Vetch and Austrian peas when grown and turned under on the better grades of land in Northwest Florida have increased corn yields about ten bushels per acre. Their use in the light lands of North Central Florida has not been shown to be profitable as a rule.

Summer cover and soil building crops of Crotalaria, cowpeas, velvet

beans, beggarweed and natal grass have been shown to be worth consideration.

Field Crop Fertilizer Experimental Work

Oats fertilizer experiments indicate that top dressings of quick acting nitrogenous fertilizer such as nitrate of soda, sulfate of ammonia or calcium nitrate at the rate of 100 pounds per acre applied in February will profitably increase the yield for either grazing, hay or grain and recent evidence gotten in Northwest Florida indicates that a small quantity of phosphate and potash at planting may also be profitably used on oats.

Peanut and chufa fertilizer experiments show that profits from the use of fertilizer are usually very small, however yields have been stepped up 5 to 9 bushels per acre from the use of 400 pounds per acre of a 3-10-4 fertilizer. Usually however as satisfactory increases, and at less cost, can be had by thicker spacing of plants on the land.

Pasture fertilizer experiments show that yields of herbage can be greatly increased by the use of commercial fertilizer. Fertilizer experiments with winter cover crops of hairy vetch and Austrian peas show that 300 pounds per acre of superphosphate applied broadcast at planting time will usually greatly increase the growth of such crops.

Corn fertilizer experiments show that very little increase in yield results from phosphate and potash to corn on the lighter types of flatwoods soils and the light sandy soils of Central Florida, whereas nitrogen applied to corn on such lands will frequently profitably increase yields. Generally speaking, however, but slight response is had even to nitrogen in certain seasons. The practice of land resting in this section seems, to a certain extent at least, to over-

C. D. Kime

Consulting Horticulturist

Grove Advisory Service,
Soil Investigations
Research

P. O. Box 222
Phone 3489
ORLANDO

come the need of applications of fertilizer to corn. On the clays, loams and sandy loam soils of Northwest Florida a complete fertilizer usually gives best results and our experiments show that 200 pounds per acre of superphosphate and 35 pounds per acre of potash applied in the drill row previous to planting followed by 100 pounds of nitrate of soda, sulfate of ammonia or some other form of quick acting nitrogen applied as a side dressing 45 days after planting profitably increases yields. This would be about a 4-8-4 fertilizer with the nitrogen held out for application as a side dressing.

Fertilizer experimental work with cotton shows that 300 to 400 pounds per acre of a complete fertilizer applied before planting and carrying most of the nitrogen in inorganic form any analyzing about 4-8-4 is satisfactory for most Florida cotton lands.

Response of Certain Field Crops to Zinc

"White bud" of corn and poor growth of other crops on land which produced white bud corn and the failure of crops grown on such land to respond to the usually used fertilizer led to studies in an attempt to remedy the trouble and zinc sulfate applied at the rate of 10 to 20 pounds per acre in the drill row previous to planting was found to relieve the trouble.

You have been given the meaning of agronomy research work, the reasons for such work and some of the results accomplished. Might we now say that while considerable has been obtained in the way of facts of interest and use yet many problems remain to be solved and much work is now in progress in the way of crop variety testing, crop breeding, new crop material testing, crop fertilizer requirement studies, crop rotation and chopping system studies, the growing and proper use of cover and soil conserving and building crops, the development, management and evaluation of pastures, the finding of pasture plants for extending the grazing period through the winter months, economical methods of establishing pastures on cut-over lands, the combined use of cut-over lands for grazing and timber growing, the

THE CITRUS INDUSTRY

breeding and increasing the supply of seed of Sea Island cotton, the development of a Spanish type of peanut which resists sprouting at maturity, the development of a runner type of peanut with the market quality of Spanish and the yielding ability of the runner and the finding and development of a hay type peanut and perhaps one of a perennial nature, thus obviating the necessity of annual planting are all being studied. Yes, these and many other problems are being attacked and in this work we cooperate with any department of the Experiment Station that can possibly help and in addition we have the cooperation of the Forage Crop office, the Cotton office and the Cereal office of the United States Department of Agriculture.

SPECIAL BULLETIN OF STATE PLANT BOARD

(Continued from page 17)

ed, stored, packed and prepared for shipment under such conditions as indicate probable freedom from infestation.

The removal of the insect in any stage of development from the area or areas under quarantine is prohibited except for scientific purposes and when approved by an accredited State or Federal plant quarantine inspector and so certified.

Rule 49-B. In order to prevent the dissemination of the White-Fringed Beetle (sometimes known as the Argentine Weevil) (*Naupactus leucoloma* Boh.) the movement of (1) sand, soil, compost and manure either as such or in connection with farm products, nursery stock or other plants; (2) all types and kinds of hay, baled or unbaled, corn shucks, corn "fodder" and "roughage," corn in shucks, velvet beans and peas in pod, velvet bean and pea hulls; (3) potatoes, sweet potatoes and sweet potato draws, vines and cuttings, sugar cane, peanuts and chufas; (4) seed cotton and cotton picking bags; (5) nursery stock and other plants with roots; (6) forest products such as lumber, piling and poles; (7) farm implements, household goods and scrap iron, from the area or areas in Florida now known to be infested or likely to be infested, namely: That part of Walton County, Florida, which is embraced in Township 5 North, Range 21 West, projected to the Alabama State line, and Township 4 North, Range 19 West; and that part of Okaloosa County, Florida, embraced in Township 5 North, Range 22 West, pro-

jected to the Alabama State line, which areas are now known to be or which may be infested; and from such other areas as may be declared by the Board in its public notices as areas which are infested or likely to be infested, is prohibited unless such materials are accompanied by a certificate issued by a duly authorized State or Federal plant quarantine inspector, setting forth in substance that the material is (1) apparently free from infestation, or (2) has been produced, packed, stored and prepared for shipment under such conditions as indicate probable freedom from infestation.

The removal of the insect (*Naupactus leucoloma* Boh.) in any stage or development from the area or areas under quarantine is prohibited except for scientific purposes and when approved by an accredited State or Federal plant quarantine inspector and so certified.

WILMON NEWELL,
Plant Commissioner.

FLORIDA AGRICULTURAL EDITOR GIVEN HONOR

J. Francis Cooper, who is connected with the State Experiment Station at the University of Florida, Gainesville, and is also editor of the *Agricultural News Service*, was elected president of the American Association of Agricultural College Editors at a convention held recently in Gainesville.

SO — WHY SPEND MORE?

Citrus growers who have cooperated with us for from 3 to 6 years spend an average of from \$30 to \$45 per acre for fertilizing, spraying, pruning, irrigation, cultivating, and other items that would be included in direct costs. This is about \$30 under the average for the state as a whole on comparable groves.

The trees in these groves are in better condition than they were when we took them on. The production of fruit has been maintained or increased (average production from 300 to 500 boxes mixed fruit per acre on 15 to 20 year old trees). The quality of the fruit is improved along with the increased quantity.

Keenan Soil Laboratory
Frostproof, Florida

IF suffering with Piles, I want to help you. Drop me a line explaining.

Fred C. Whitney
317 6th Ave., Des Moines, Iowa

Research Department Established By Dolomite Products Co.

Dr. O. C. Bryan, formerly Professor of Soils at the University of Florida has recently accepted a position as director of Research for Dolomite Products, Incorporated.

The sales department of the new concern will have its office in Ocala under the direction of W. M. Palmer, while the Research Department will have its office in Bartow, with its laboratory located nearby at Pembroke.

Dr. Bryan has for many years concerned himself with the problems of growers in regard to soil and plant nutrition.

Dr. Bryan came to the University in 1923 and for fourteen years was connected with that institution in the division of Agronomy or as Professor of Soils.

He is well known among the growers all over the state for his application of the results of research work to the practical use of agriculture in plant and crop production.

Dr. Bryan's new position will enable him to devote his attention to

research studies with Dolomite in an effort to find the place of Dolomite in the agriculture of Florida. This is not a new field for Dr. Bryan as he has done a great deal of work with Dolomite while at the University.

Some of the papers prepared by Dr. Bryan which have been of wide interest are:

The Soils of Florida; joint author with R. Stoutmaire of The Soils of Florida and Their Utilization; The Yield and Growth of Grapefruit as Affected by Nitrogen Fertilizers; The Concentration and Movement of Nitrate Nitrogen in Citrus Soils; The Mineral Content of Soil Types as Related to "Salt Sick" of Cattle; The Effect of Soil Reaction (pH) on Citrus; Citrus Bronzing, A Magnesium Deficiency.

Condition of Florida oranges is reported 5 points higher than at this time in 1936, but that of grapefruit is 18 points lower.

CROTALARIA—New crop, high quality, double cleaned, scarified Crotalaria Striata seed for sale. Attractive prices. Carolinas' Crotalaria Co., Camden, S. C.

FOR SALE—80 acres good citrus land, two miles northwest of Cocoa, Brevard County, Florida. Price \$1600.00 cash. S. Hendry, City Point, Florida.

Hamlin, Valencia and Lue Gim Gong for fall planting. All on Cleopatra root. Zellwood Nurseries, Zellwood, Fla.

FILMS DEVELOPED 2 prints of each 25c; 20 reprints 25c. Pine Photo, Y-5134 Nevada, Chicago.

THRIFTY TREES and budwood from record performance Perrine Lemon parents. Persian Lime and other citrus varieties. DeSoto Nurseries, DeSoto City, Fla.

WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

QUIT TOBACCO easily, inexpensively, without drugs. Send address. Ezra Stokes, Mohawk, Florida.

ALYCE CLOVER, the best legume for hay or covercrop. Write for information. Hardin Groves, Box 63, Lakeland, Fla.

CAUSERIENCE LEPIDODOLIA—(So-called Brazilian oak), resembles Australian pine. Grand for wind-breaks. Cold resistant. Beautiful. Send for sample of foliage. \$6.00 per 100. S. S. Matthews, Homestead, Fla.

UP to \$20.00 paid for Indian Head Cents; Half Cents \$125.00; Large Copper Cents

\$500.00, etc. Send dime for list. Roman-coinshop, D. Springfield, Mass.

FOR SALE—Small packing house machinery and equipment complete. Apply Hector Supply Company, Miami.

PERSONAL—Quit Tobacco easily, inexpensively, without drugs. Send address. N. A. Stokes, Mohawk, Florida.

CHOICE Sour Orange Seedlings for fall planting, very desirable stock. S. G. Coburn, Dade City, Florida.

FOR SALE: Several desirable bearing grapefruit and orange groves, in good condition, at extremely low prices. For information write H. C. Case, Box 87, Fort Myers, Fla.

EVERY TRACTOR OWNER NEEDS IRVING'S 60 page 1937 tractor replacement parts catalog. Absolutely free. Thousands parts, all makes, tremendous price savings. Irving's Tractor Lug Co., 109 Knoxville Road, Galesburg, Illinois.

HARDIN'S SPERRYOLA Lemons, a profitable adapted commercial variety for all sections. Hardy, prolific grower and producer. Limited number choice trees. Hardin Nurseries, Box 63, Lakeland, Fla.

MEN WANTED—Sell shirts. No experience necessary. Free samples. Commission in advance. Free ties with shirts. Carroll Mills, 875A Flatbush Av., Brooklyn, N. Y.

CITRUS NURSERY TREES, standard and new varieties on Cleopatra and Sour. Priced from \$0c up. Grand Island Nurseries, Eustis, Fla.

FREE Booklet describes 87 plans for making \$20-\$100 weekly, home or office, busi- your own. Elite Service, 505 Fifth ave., New York City.

WANTED—To hear from owner having good farm for sale. Cash price, particulars. John Black, Chippewa Falls, Wisconsin.

PUREBRED PULLETS FOR SALE—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorns now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

LAREDO SOY BEANS, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

SCENIC HIGHWAY NURSERIES has a large stock of early and late grapefruit and oranges. One, two and three year buds. This nursery has been operated since 1885 by G. H. Gibbons, Waverly, Fla.

SEED—Rough lemon, sour orange, cleopatra. New crop from type true parent trees. Also thrifty seedlings. DeSoto Nurseries, DeSoto City, Florida.

NEW COMMERCIAL lemon for Florida, the Perrine; proven. All residents need yard trees, keeping Florida money at home. Booking orders for budded stock for winter delivery. DeSoto Nurseries, DeSoto City, Fla.

CITRUS SEEDLINGS, all root stock varieties. \$10.00 per 1000 up. Grand Island Nurseries, Eustis, Fla.

BUDDED trees new Florida commercial lemon, proven, thin skinned, juicy, scab immune. Also rough lemon, sour orange and Cleopatra seed and liningout seedlings. DeSoto Nurseries, DeSoto City, Fla.

SEEDS—ROUGH LEMON, SOUR ORANGE, CLEOPATRA. Pure, fresh, good germination. Also seedlings lineout size. De Soto Nurseries, DeSoto City, Fla.

CROTALARIA SPECTABILIS—Seed for sale. New crop, well cured, bright and clean. Price 25c per pound in 100 pound lots and over, 80c per pound in less quantities. f.o.b. Hastings, Bunnell, Lowell and San Antonio, Florida. F. M. LEONARD & COMPANY, Hastings, Florida.

WANTED—Position as packing house foreman; in citrus business twenty-five years; ten years' experience as foreman; married man. J. R. Henry, Okahumpka, Florida.

2 YEAR FIELD GROWN ROSES: Red, Pink, Shell, Salmon, White Radiance, Hollande, Columbia, Milady, Luxemburg, Edel, Padre, Victoria Talisman, Persian. All 19c each, postpaid, ship COD. Catalog free. NAUGHTON FARMS, Waxahachie, Texas.

CROTALARIA SPECTABILIS, fresh crop, scarified, \$15.00 per 100 lbs. F. O. B. Eustis. **GRAND ISLAND NURSERIES, EUSTIS, FLA.**

CLASSIFIED

Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

THOUSANDS of Rough Lemon Seedlings, six to twenty inches high. \$1.50 per hundred; \$12.50 per thousand; ten thousand or more at \$10.00 per thousand. Strong field grown plants. **INDIAN ROCK NURSERIES**, Largo, Florida.

STANDARD varieties of citrus trees including Persian limes and Perrine lemons at reasonable prices. Ward's Nursery, Avon Park, Fla.

Texas In The Citrus Field Are YOU produc- ing...

Twenty years ago Texas was an unknown quantity in the citrus field. Fifteen years ago the Lower Rio Grande Valley was just beginning to recognize its possibilities as a citrus producing section, while other citrus areas were still skeptical of those possibilities.

Yet a citrus census just completed conveys the astounding information that on August 1 of the present year there were 7,040,946 citrus trees in the four citrus producing counties of the Lower Rio Grande Valley.

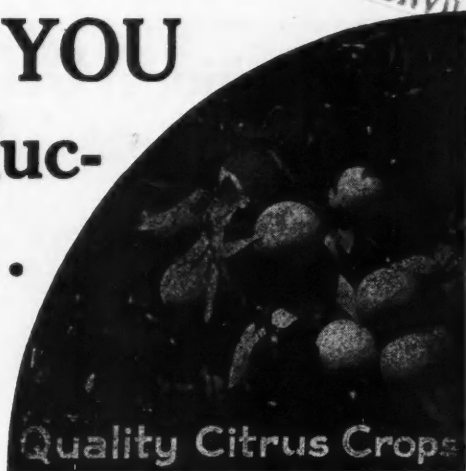
Of this grand total, 5,228,656 were grapefruit trees; 1,648,107 orange trees; 46,556 tangerines; 50,667 lemons; 5,685 limes and 61,275 trees of other citrus varieties.

Of the grapefruit trees, 4,625,797 were five years or older, and of the orange trees 1,400,313 were over five years of age. Taking into consideration tangerines, lemons, limes and other citrus trees, a total of 6,145,453 trees in the Texas citrus belt are five years or more of age.

That Texas is still increasing its citrus plantings is shown by the fact that 100,448 trees were planted during the season of 1936-37, of which grapefruit constituted 46,824 and oranges 48,102, which demonstrates that Texas is increasingly determined to enter all branches of the citrus field, being no longer content to confine itself to the production of grapefruit.

In all future citrus calculations, Texas must be given serious consideration.

The citrus tree is worthy of its plant food — and an occasional bath of spray.



?

Nature gives the answer!

• Soon citrus growers will have the answer to their year's work. Fruit will be going to market . . . and the packing house checkup on quality tells its own story. Fertilizer plays an important part in getting the yield and **QUALITY** you want in your fruit. Growers who use **GULF Friendly Fertilizers** and the fertilization program recommended by Gulf Field Men, are working with Nature — because **GULF Brands** give your crops the right plant foods in the right amounts at the right time. Before you complete plans for Fall applications in your grove, ask your local Gulf Field Man to call. He may save you money.

For Everything
that Grows
in Florida—use



GULF Brands of
FERTILIZER

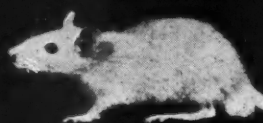
Friendly Fertilizers

THE GULF FERTILIZER COMPANY
36th Street, South of East Broadway, Tampa, Florida

FREE PUBLIC LIBRARY
JACKSONVILLE, FLORIDA

Avoid Nutritional Deficiency In Your Crops

This Can Happen to Crops, Too



1. This white rat had good protein but was short-changed in quantity. He is under nourished and puny. You've seen groves and vegetable crops like this.



2. This one got enough protein but was short-changed in protein quality. He is a scrawny, ailing weakling, starving to death amid apparent plenty.



3. This one had good protein and plenty of it. No short-changing here. He is healthy and strong, 2½ times as large as Rat No. 1; 3 times as large as Rat No. 2.

Courtesy Bureau Home Economics—U. S. Dept. of Agriculture

IDEAL Fertilizers
Supply a Full

MAINTENANCE RATION

Short-change a laboratory animal, a child, a citrus tree or a vegetable of any essential food element and weak, stunted growth follows. Every living thing requires a "maintenance ration"—a properly balanced, complete diet — to achieve full, healthy growth.

IDEAL Fertilizers provide the maintenance ration your citrus trees need for hardy wintering; for vigorous re-awakening in the spring. Use IDEAL Brands for your fall application.

Good tree health and profitable crops require that the normal, natural food balance of the soil be maintained as a reserve. IDEAL Brands keep this reserve intact by supplying as a maintenance ration ALL of the food elements required for each period of growth.

But poorly balanced or incomplete fertilizers invade this reserve. The elements

missing from the fertilizers are soon drained from the soil. Nutritional deficiency follows. The tree cannot take advantage of other food elements because its whole feeding system is out of gear. The results will be like the stunted growth of White Rats No. 1 and No. 2 shown above.

Your citrus grove is too valuable, your crop profits too important to risk nutritional deficiency. You want sleek, vigorous, well-fed trees that produce top quality fruit and lots of it. Well, then, apply IDEAL Fertilizers.

Constant research and testing are the foundation of IDEAL Brands. They are the product of every bit of crop-feeding wisdom that science has painstakingly won for agriculture, plus the knowledge we have gained from our 45 years of experience in making better fertilizers for Florida citrus and vegetable growers — of leading the way to bigger yields and higher quality.



For Fall Vegetable Plantings

Use IDEAL Fertilizers for all fall vegetable applications. Provide your crops with the all-important maintenance ration. Your local IDEAL Fertilizer agent carries full stocks of IDEAL Brands especially suited to your crops and soil.

WILSON & TOOMER FERTILIZER COMPANY

JACKSONVILLE, FLORIDA

Use **IDEAL Fertilizers** Get at Least a HALF BOX MORE per Tree